



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/675,921	09/30/2003	Yin Men Lai	884.A65US1	2078
21186	7590	12/04/2006	EXAMINER	
SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A. P.O. BOX 2938 MINNEAPOLIS, MN 55402			GEYER, SCOTT B	
			ART UNIT	PAPER NUMBER
			2812	

DATE MAILED: 12/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/675,921	Applicant(s) LAI ET AL.	
	Examiner Scott Geyer	Art Unit 2812	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9, 21-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-9, 21-26, 29, 32-35 and 39 is/are rejected.
- 7) ☒ Claim(s) 5, 27, 28, 30, 31, 36-38 and 40 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 September 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of claims 1-9 and 21-40 in the reply filed on September 6, 2006 is acknowledged.

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the film on the backside of the die as recited in claims 6, 7, 8, 27 and 28 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering

Art Unit: 2812

of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

The drawings are objected to because of minor informalities:

Figure 1: numeral 121 is shown with no arrow pointing to a feature of the drawing

Figure 5: two arrows are depicted with no corresponding numerals for identification

Figure 8: numeral 821 is shown with no arrow pointing to a feature of the drawing

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an

Art Unit: 2812

application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance. **It is noted that the submitted drawings are of an informal nature, appear to be hand-drawn and have numerous photo-copy marks. It is recommended that the applicant provide formal drawings and to check all drawings for errors.**

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 21-23, 25 and 33 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Murali et al. (6,248,951 B1). See figures 3A-3C and accompanying text.

Claims 21-26 and 29 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Miyazaki (US 2002/0008316 A1). See figures 2A-2C and accompanying text.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6-9 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murali et al. (6,248,951 B1) as applied to claim 1 above, and further in view of Hembree (6,117,797).

As to claim 6, Murali et al. teach placing pressurized encapsulation material on the sidewall surfaces of the die but do not teach placing a film on the backside of the die. However, Hembree does teach placing a film on the backside surface of the die. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Murali et al. with a film as taught by Hembree so as to remove unwanted encapsulant from the backside of the die for ease in attachment of a heatsink device (see abstract). As to claims 7-9 and 39, Hembree also teaches encapsulating the sides of the die, and removing the film afterwards and attachment of a heatsink device.

Claims 34 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murali et al. (6,248,951 B1) as applied to claim 1 above, and further in view of examiner's official notice.

Art Unit: 2812

As to claims 34 and 35, Murali et al. do not specifically teach etching of the device. However, it is notoriously well known in the art of semiconductor manufacturing that etching processes are performed on devices throughout the different stages of the manufacturing process, including but not limited to process such as plasma cleaning, etching of vias in circuit boards, etching through passivation layers, etching to form ID marks, etc. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the method of Murali et al. to include an etching process at any stage of the manufacturing process to complete the manufacturing process.

Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miyazaki (US 2002/0008316 A1) as applied to claim 21 above, and further in view of examiner's official notice.

As to claim 32, Miyazaki does not specifically teach etching of the device. However, it is notoriously well known in the art of semiconductor manufacturing that etching processes are performed on devices throughout the different stages of the manufacturing process, including but not limited to process such as plasma cleaning, etching of vias in circuit boards, etching through passivation layers, etching to form ID marks, etc. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the method of Murali et al. to include an etching process at any stage of the manufacturing process to complete the manufacturing process.

Allowable Subject Matter

Claims 5 and 27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. (claims 36, 37, 38 and 40 depend from claim 5; claims 28, 30 and 31 depend from claim 27).

Conclusion

The following references are cited as being particularly relevant to the applicant's invention: Goetz et al. (6,649,446 B1), Juskey et al. (6,546,620 B1), Skokov et al. (US 2004/0159923 A1), Manepalli et al. (US 2004/0121512 A1), Endo et al. (US 2004/0056341 A1), Stewart et al. (US 2003/0170450 A1) and Ishida et al. (US 2002/0089836 A1).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott Geyer whose telephone number is (571) 272-1958. The examiner can normally be reached on weekdays, between 10:00am - 6:30pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Lebentritt can be reached on (571) 272-1873. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

Art Unit: 2812

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SBG
November 20, 2006

SCOTT B. GEYER
PRIMARY EXAMINER

 11/21/06